

AMENDMENTS TO THE CLAIMS

1-29. (cancelled)

30. (withdrawn) An anastomosis device for connecting an end of a graft vessel to a side of a target vessel, the anastomosis device comprising:

a one-piece continuous body configured to expand from a reduced insertion configuration to an expanded configuration; and

a plurality of graft vessel penetrating elements attached to the body, wherein said elements are configured to penetrate the graft vessel without penetrating the target vessel.

31. (withdrawn) The device of Claim 30, wherein the one-piece continuous body is formed of a superelastic or pseudoelastic material.

32. (withdrawn) The device of Claim 31, wherein the one-piece continuous body is formed of NiTi alloy.

33. (withdrawn) The device of Claim 31, wherein the one-piece continuous body is formed of stainless steel.

34. (withdrawn) The device of Claim 30, wherein the body in the expanded configuration forms a flange at an interior of the target vessel wall.

35. (withdrawn) The device of Claim 34, further comprising an outer flange.

36. (withdrawn) The device of Claim 35, wherein said outer flange is connectable to the body.
37. (previously presented) An anastomosis system for connecting a graft vessel to a target vessel, the applicator comprising:
- a one-piece anastomosis device;
 - a first tube configured to receive a said anastomosis device;
 - a second tube concentric with the first tube, the first and second tubes configured for movement with respect to one another to deploy said anastomosis device, wherein said deployed anastomosis device has two spaced-apart flanges; and
 - a side hole in at least one of the first and second tubes configured to allow the graft vessel to pass out of the side of the tube.
38. (previously presented) The anastomosis applicator of Claim 37, wherein the second tube is rotatable with respect to the first tube.
39. (previously presented) The anastomosis applicator of Claim 37, wherein the second tube is movable with respect to the first tube to apply torque to said anastomosis device.
40. (previously presented) The anastomosis applicator of Claim 37, wherein the second tube is movable with respect to the first tube to apply an axial compressive force to said anastomosis device.
41. (previously presented) The anastomosis applicator of Claim 37, wherein the first tube is configured for removable connection to said anastomosis device.

42. (previously presented) The anastomosis applicator of Claim 37, further comprising a handle connected to the first and second tubes with a mechanism for deploying said anastomosis device.

43. (previously presented) The anastomosis applicator of Claim 37, wherein the first tube includes a plurality of connecting members at a distal end thereof and said anastomosis device includes a plurality of features arranged to removably connect to the plurality of connecting members.

44. (previously presented) The anastomosis applicator of Claim 37, in combination with said anastomosis device configured for connecting a graft vessel to a target vessel.

45. (currently amended) An anastomosis ~~applicator for deploying a one-piece anastomosis device to connect a graft vessel to a target vessel~~, the applicator system, comprising:

a one-piece anastomosis device;

a first tube configured to receive the one-piece connected to said anastomosis device;

and

a second tube concentric with said first tube, wherein at least one of said first and

second tubes is ~~movable~~ rotatable with respect to the other said tube to apply

torque to the said anastomosis device about its longitudinal axis.

46. (previously presented) The anastomosis applicator of Claim 45, wherein said second tube is rotatable with respect to said first tube.

47. (canceled)

48. (previously presented) The anastomosis applicator of claim 45, wherein at least one of said first tube and said second tube is movable with respect to the other said tube to apply an axial compressive force to the anastomosis device.

49-54. (canceled)

55. (currently amended) An anastomosis tool for use in connecting an end of a graft vessel to the side of a target vessel, the tool comprising a vessel penetrating member configured to penetrate the target vessel, wherein said vessel penetrating member is located outside the lumen of the graft vessel at all times and configured for withdrawal outside the lumen of the graft vessel, and wherein the tool is configured to penetrate the target vessel and deliver a one-piece anastomosis device to connect the graft vessel to the target vessel.

56. (previously presented) The anastomosis tool of Claim 55, wherein the anastomosis tool further comprises at least two concentric tubes configured for deploying the one-piece anastomosis device.

57. (previously presented) The anastomosis tool of Claim 55, wherein the concentric tubes are configured for movement with respect to one another to deploy the one-piece anastomosis device.

58. (previously presented) The anastomosis tool of Claim 56, wherein the vessel penetrating member is configured for positioning inside the concentric tubes.

59. (withdrawn) An integrated anastomosis tool for connecting an end of a graft vessel to a side of a target vessel, the tool comprising:

a vessel penetrating member configured to penetrate the side of the target vessel;

a tubular anastomosis device configured to connect the end of the graft vessel to the side of the target vessel; and

an anastomosis device applicator for deploying the anastomosis device.

60. (withdrawn) The tool of Claim 59, wherein the anastomosis device applicator includes two concentric tubes configured for movement with respect to one another and for the deployment of the anastomosis device.

61. (withdrawn) The tool of Claim 59, wherein the tubular anastomosis device is a one-piece tubular anastomosis device.

62. (withdrawn) The tool of Claim 59, wherein the tubular anastomosis device and anastomosis device applicator are configured for eversion of the end of the graft vessel over a distal or proximal end of the tubular anastomosis device.

63. (withdrawn) The tool of Claim 62, wherein the tool is configured not to pass any portion of said tool through a lumen of said graft vessel.

64. (withdrawn) The tool of Claim 59, wherein the vessel penetrating member is configured for positioning inside the anastomosis device applicator.

65. (withdrawn) The tool of Claim 59, wherein the tubular anastomosis device is configured for insertion through an incision formed by the penetrating member.
66. (withdrawn) The tool of Claim 59, in combination with an anastomosis device configured for connecting a graft vessel to a target vessel.
67. (withdrawn) An anastomosis device for connecting an end of a graft vessel to a side of a target vessel, the anastomosis device comprising:
- a body having a longitudinal axis, an open proximal end, and an open distal end;
 - at least two deployable sections on the body, the deployable sections each having a pre-deployed configuration for insertion into the target vessel and a deployed configuration for connecting the graft vessel to the target vessel, wherein the anastomosis device is configured to collapse longitudinally when deployed.
68. (withdrawn) The device of Claim 67, wherein the anastomosis device is configured to be longitudinally collapsed to a greater or lesser degree to position the deployable sections at a desired location.
69. (withdrawn) A method of performing anastomosis between a graft vessel and a target vessel, the method comprising:
- inserting an anastomosis device with a graft vessel connected thereto at least partly into a target vessel;
 - deploying a first flange of the anastomosis device within the target vessel;
 - moving the deployed first flange of the anastomosis device with the connected graft vessel into contact with an inner wall of the target vessel; and then

deploying a second flange of the anastomosis device outside of the target vessel.

70. (withdrawn) The method of Claim 69, wherein the deploying step connects an end of the graft vessel to a side of the target vessel.

71. (withdrawn) The method of Claim 69, wherein the first flange and the second flange of the anastomosis device are deployed by an anastomosis device applicator.

72. (withdrawn) The method of Claim 69, wherein the steps of deploying of the first flange and deploying the second flange are both performed by actuation of a handle of the anastomosis device applicator.

73. (withdrawn) The method of Claim 72, wherein the actuation of the handle is performed manually.

74. (withdrawn) The method of Claim 72, wherein the actuation of the handle is performed in a step wise manner.

75. (withdrawn) The method of Claim 69, wherein the step of inserting the anastomosis device includes inserting a one-piece continuous ring anastomosis device.

76. (withdrawn) The method of Claim 75, further comprising a step of everting the graft vessel over at least a portion of the anastomosis device before inserting the anastomosis device.

77. (previously presented) A method of performing anastomosis between a graft vessel and a target vessel, each having a lumen therein, the method comprising:

providing a one-piece anastomosis device;

receiving said anastomosis device on an anastomosis device applicator having a vessel penetrating member;

connecting a graft vessel to said anastomosis device on said anastomosis device applicator, wherein said anastomosis device applicator is outside the lumen of the graft vessel;

creating an opening in the target vessel with the vessel penetrating member of the anastomosis device applicator;

advancing said anastomosis device into the penetration in the target vessel; and

deploying said anastomosis device with the anastomosis device applicator to connect the graft vessel to the target vessel.

78. (previously presented) The method of Claim 77, wherein the step of deploying said anastomosis device is performed by moving two tubes of the anastomosis device applicator with respect to one another to deploy said anastomosis device.

79. (previously presented) The method of Claim 77, wherein said anastomosis device is a one-piece anastomosis device.

80. (previously presented) The method of Claim 77, wherein during the penetrating step the vessel penetrating member is positioned inside the anastomosis device applicator.

81. (previously presented) The method of Claim 77, wherein the step of deploying connects an end of the graft vessel to a side of the target vessel.

82. (previously presented) A method of performing anastomosis between a graft vessel and a target vessel, the method comprising:

providing a one-piece anastomosis device;

receiving said anastomosis device on an anastomosis device applicator including a

first tube and a second tube substantially coaxial with the first tube;

connecting a graft vessel to said anastomosis device on the anastomosis device

applicator with an end of the graft vessel passing out a side hole of at least one of the first and second tubes; and

deploying said anastomosis device with the anastomosis device applicator to connect the graft vessel to the target vessel.

83. (previously presented) The method of Claim 82, wherein the step of deploying said anastomosis device is performed by moving the first and second tubes with respect to one another.

84. (previously presented) The method of Claim 82, wherein the step of receiving said anastomosis device on the anastomosis device applicator is performed by removably connecting a plurality of features of said anastomosis device to a plurality of connecting members at a distal end of the first tube.